

Trend Study 10-3-00

Study site name: Lower McCook Ridge Chaining .

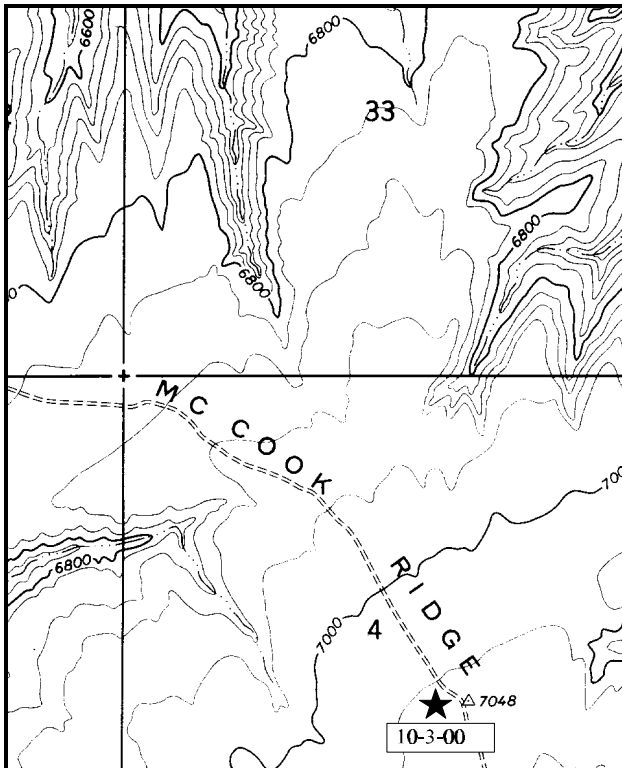
Range type: Chained, Seeded PJ .

Compass bearing: frequency baseline 149°M .

First frame placement on frequency belts 5 feet. Frequency belt placement; line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line 4 (71ft).

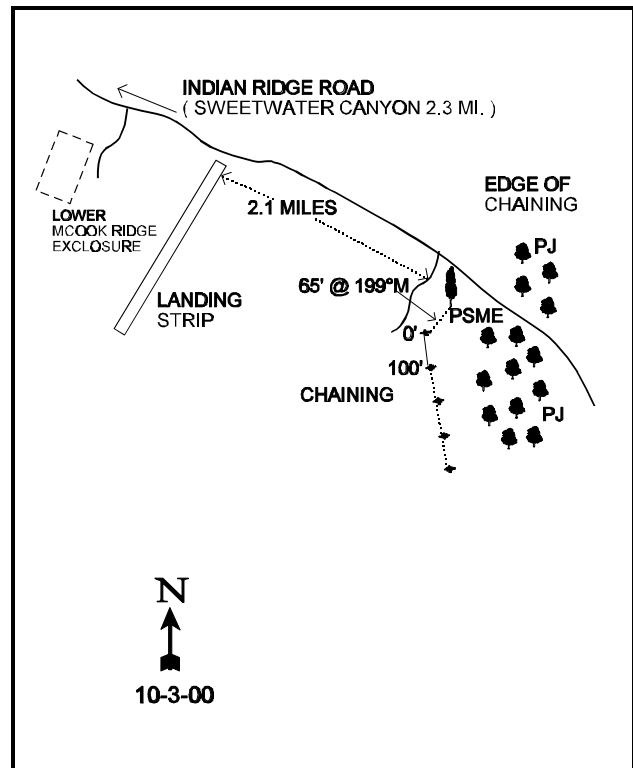
LOCATION DESCRIPTION

From the intersection of the Indian Ridge and McCook Ridge roads, go southeast on McCook Ridge for 2.3 miles to a landing strip on the right side of the road (just past enclosure). Proceed an additional 2.1 miles up McCook Ridge into a chained area. Turn right off the main road before the edge of the chaining, and proceed over to a large, lone douglas fir. The 0-foot baseline stake, marked by browse tag # 9036, is 13 paces from the tree at a bearing of 199°M. The frequency baseline is marked by a green, 12-18 inch tall fenceposts.



Map Name: Burnt Timber Canyon .

Township 14S , Range 24E , Section 4



Diagrammatic Sketch

UTM. 4387335.339 N, 651730.709 E

DISCUSSION

Trend Study No. 10-3 (16A-3)

The Lower McCook Ridge Chaining study is located on a chained pinyon-juniper area about 2 miles southeast of the Lower McCook Ridge exclosure at approximately 7,030 feet in elevation. The prevailing terrain is a broad, flat ridge. The study site monitors important deer and elk winter range that is also grazed by livestock. Cattle use the area on a rotational deferred management system during the spring or fall, with selective periods for rest. Wildlife use is currently light with an estimated 25 deer days use/acre (62 ddu/ha) and 19 elk days use/acre (47 edu/ha) from 2000 pellet group transect data. A large wildfire started in the area in late May of 2000. The firefighters were finishing putting the blaze out when the site was read during the first week of June 2000.

Soils are intermediate in texture on the surface, but increasing in clay content a few inches below the surface. Texture is a clay loam with an estimated effective rooting depth of nearly 16 inches. Soil reaction is neutral (pH of 7.1). Penetrometer readings estimate the majority of the rockiness to be between 5 and 15 inches below the surface. Average soil temperature is 56°F at over 16 inches in depth. Phosphorus levels (7.8 ppm) are slightly lower than the 10 ppm determined necessary for normal plant growth and development. Organic matter is moderately high at 4%. There is evidence of shrinking clays in the soil with surface cracks present. Mountain big sagebrush occupies areas of deeper soils (15 inches) with dwarf rabbitbrush occupying areas with more shallow soils (11 inches). Erosion is minimal because of level terrain, a fair vegetative cover, and the presence of large amounts of persistent, well distributed litter and chaining debris.

The shrub community is still developing following the chaining treatment. Mountain big sagebrush is the key species currently ('00) estimated at 2,980 plants/acre. This is a slight decrease from the 3,160 plants/acre estimated in 1995. There are some individual sagebrush plants that appear to be hybrids between mountain big sagebrush (*Artemisia tridentata vaseyana*) and basin big sagebrush (*Artemisia tridentata tridentata*) or black sagebrush (*Artemisia nova*). However, the majority of the population resembles mountain big sagebrush so all sagebrush was classified as such. Currently, the majority of the sagebrush population consists of mature and decadent plants. Percent decadency is moderate at 34% in 2000, up from 3% in 1995. Fifty-five percent of the decadent plants were classified as dying in 2000 (560 plants/acre), which may result in a population decrease in the future due to low recruitment (160 young plants/acre) and no seedlings sampled in 2000. The proportion of plants displaying poor vigor increased from less than 1% in 1995 to 19% in 2000. Forty percent of the population currently shows moderate use with an additional 9% displaying heavy use. The drought experienced over the last year has likely caused, at least in part, many of these negative factors in the sagebrush population. A return to normal precipitation patterns should reverse many of these trends.

Other preferred species include: rubber rabbitbrush, winterfat, and fourwing saltbush. However, these species are infrequent and in low densities. If more preferred shrubs such as antelope bitterbrush, true mountain mahogany or fourwing saltbush were a part of the original seed mixture, they have failed to become established.

The most numerous browse species is dwarf rabbitbrush. This small prostate shrub numbered 6,266 plants/acre in 1982 and 27,266 by 1988. Densities have since dropped to 13,660 plants/acre in 1995 and 15,500 plants/acre in 2000. These large changes in density for this shrub are likely due to the much larger sample size used beginning in 1992 which better estimates shrub populations with clumped and/or discontinuous distributions. Use on dwarf rabbitbrush increased in 2000 to a mostly moderate level. Percent decadency increased from 0% in 1995 to 17% in 2000.

Surviving pinyon and juniper trees are increasing in size on this chaining. Point-center quarter data from 2000 estimate 127 pinyon trees/acre and 147 juniper trees/acre. Photos indicate that juniper and pinyon trees have

increased considerably in size since 1982. Line-intercept data estimated an average of 4% overhead canopy cover from pinyon and juniper trees in 2000. A follow up treatment might be warranted to eradicate the young trees and encourage more herbaceous vegetation.

Grass composition consists of 13 perennial species. The most common is crested wheatgrass which accounted for 53% of the grass cover in 1995, increasing to 71% with drought in 2000. Blue grama and muttongrass are the only other species which contribute more than 1% average cover. Sum of nested frequency for all grasses decreased considerably in 2000, most likely due to drought. Grasses were reportedly heavily grazed in the past. Smooth brome continues to decrease in frequency and is found primarily in the shelter of tree litter and often is physically protected from grazing. Forb composition is markedly deficient, especially for a seeded area. Combined, all forbs accounted for only 4% average cover in 1995, decreasing to just over 1% in 2000. The only seeded forb encountered was alfalfa which had a quadrat frequency of only 6% in 1995 and 4% in 2000. Sum of nested frequency for perennial forbs also decreased in 2000.

1982 APPARENT TREND ASSESSMENT

Soil trend appears stable with little evidence of soil loss. Vegetation trend also appears stable. The nearly total lack of forbs and the heavy use being made of grasses are negative factors which could result in rapid regrowth of pinyon and juniper and a dense sagebrush stand.

1988 TREND ASSESSMENT

Soil trend is up with basal vegetative cover more than doubling and percent bare ground decreasing from 20% in 1982 to only 10% this year. The browse trend is slightly down. The sagebrush population shows high levels of utilization and percent decadency. Dwarf rabbitbrush and broom snakeweed have increased dramatically since the last reading and appear to have expanding populations. Juniper has increased in density and both pinyon and juniper have increased considerably in size since the last reading. They appear to be regaining dominance of the treatment area. Trend for grasses is up due to increased quadrat frequencies. Forbs are still lacking and of little importance on this site.

TREND ASSESSMENT

soil - up (5)

browse - slightly down (2)

herbaceous understory - up (5)

1995 TREND ASSESSMENT

The soil trend is stable overall. Ground cover characteristics are slightly down due to increased bare ground and decreased litter values. Erosion is not currently a problem on the site due to the level terrain and adequate vegetation and litter cover. The decline in litter cover is primarily due to the decomposition of debris from the chaining. The browse trend has improved. The mountain big sagebrush density has nearly doubled since 1988. Vigor is good, percent decadency low, and most are lightly hedged. Dwarf rabbitbrush dropped in density by 50% and broom snakeweed declined 68% since 1988. Trend for the herbaceous understory is up with increased sum of nested frequencies of grasses and forbs. Nested frequency of crested wheatgrass, intermediate wheatgrass, and smooth brome declined significantly while frequency of slender wheatgrass, prairie junegrass and mutton grass increased significantly. Alfalfa, the only seeded forb encountered, increased in nested frequency.

TREND ASSESSMENT

soil - stable (3)

browse - up (5)

herbaceous understory - up (5)

2000 TREND ASSESSMENT

Trend for soil is stable. Ground cover characteristics are similar to 1995 levels. Percent cover of bare soil increased in 2000, but percent cover of vegetation and litter remained nearly stable. Trend for browse is slightly down due to downward trends in many key factors for mountain big sagebrush. The mountain big sagebrush population shows increases in percent decadency, poor vigor, and utilization. Also, there is a high proportion of decadent plants classified as dying. Currently, there are not enough young plants to replace the decadent, dying plants in the population. Many of these downward factors for sagebrush could improve with a return to normal precipitation patterns. Trend for the herbaceous understory is slightly down. Sum of nested frequency for perennial grasses and forbs decreased by nearly 30% in 2000 due to drought. Once again, an end to the drought will most likely will reverse this trend in the future.

TREND ASSESSMENT

soil - stable (3)

browse - slightly down for mountain big sagebrush (2)

herbaceous understory - slightly down due to drought (2)

HERBACEOUS TRENDS --

Herd unit 10 , Study no: 3

Type	Species	Nested Frequency			Quadrat Frequency				Average Cover %	
		'88	'95	'00	'82	'88	'95	'00	'95	'00
G	Agropyron cristatum	_b 257	_a 168	_a 196	54	85	52	59	6.43	10.21
G	Agropyron dasystachyum	_a 2	_b 132	_b 104	1	2	48	38	.56	.64
G	Agropyron intermedium	_c 67	_b 21	_a -	-	27	7	-	.16	-
G	Agropyron trachycaulum	_b 13	_b 16	_a -	-	6	7	-	.16	-
G	Bouteloua gracilis	_a 6	_c 106	_b 86	-	2	39	31	1.25	1.59
G	Bromus inermis	_b 52	_a 22	_a 3	11	22	7	2	.28	.03
G	Carex spp.	_b 33	_a 11	_a 3	5	19	5	3	.36	.30
G	Elymus junceus	16	12	3	-	6	4	1	.33	.15
G	Koeleria cristata	_a 11	_b 54	_a 28	-	5	23	13	.48	.14
G	Oryzopsis hymenoides	_{ab} 6	_b 6	_a -	14	3	5	-	.07	-
G	Poa secunda	_a 18	_b 81	_b 73	1	8	31	28	2.02	1.40
G	Sitanion hystrix	_b 8	_{ab} 4	_a -	1	5	2	-	.01	-
G	Stipa comata	_{ab} 1	_b 9	_a -	-	1	3	-	.01	-
Total for Annual Grasses		0	0	0	0	0	0	0	0	0
Total for Perennial Grasses		490	642	496	88	191	233	175	12.16	14.48
Total for Grasses		490	642	496	88	191	233	175	12.16	14.48

Type	Species	Nested Frequency			Quadrat Frequency				Average Cover %	
		'88	'95	'00	'82	'88	'95	'00	'95	'00
F	<i>Antennaria rosea</i>	a ⁻	c ³⁰	b ¹²	-	-	15	6	.17	.03
F	<i>Arabis</i> spp.	a ⁷	b ²⁹	a ⁵	-	4	11	2	.87	.01
F	<i>Arenaria fendleri</i>	14	3	5	-	6	1	3	.03	.04
F	<i>Astragalus spatulatus</i>	b ³⁴	a ⁻	a ⁵	-	14	-	2	-	.03
F	<i>Caulanthus crassicaulis</i>	2	-	-	-	1	-	-	-	-
F	<i>Calochortus nuttallii</i>	-	6	-	-	-	3	-	.01	-
F	<i>Castilleja</i> spp.	-	22	-	-	-	11	-	.11	-
F	<i>Crepis acuminata</i>	-	6	-	-	-	2	-	.01	-
F	<i>Delphinium</i> spp.	-	2	-	-	-	1	-	.00	-
F	<i>Erigeron</i> spp.	-	-	5	-	-	-	2	-	.01
F	<i>Erigeron pumilus</i>	a ⁻	ab ³	b ⁶	-	-	1	4	.04	.02
F	<i>Grindelia squarrosa</i>	-	-	-	-	-	-	-	.00	-
F	<i>Haplopappus acaulis</i>	11	8	15	-	6	3	6	.33	.54
F	<i>Hymenoxys acaulis</i>	a ⁻	b ¹²	ab ¹	-	-	5	1	.80	.00
F	<i>Lappula occidentalis</i> (a)	-	2	-	-	-	1	-	.00	-
F	<i>Machaeranthera grindelioides</i>	b ⁶²	a ¹³	a ²³	-	25	7	10	.13	.17
F	<i>Medicago sativa</i>	a ¹	b ¹⁴	ab ⁸	-	1	6	4	1.24	.39
F	<i>Oenothera caespitosa</i>	-	-	1	-	-	-	1	-	.00
F	<i>Orthocarpus</i> spp. (a)	-	4	-	-	-	2	-	.01	-
F	<i>Penstemon pachyphyllus</i>	-	3	-	-	-	2	-	.02	-
F	<i>Phlox austromontana</i>	2	-	-	-	1	-	-	-	-
F	<i>Phlox longifolia</i>	a ⁻	c ⁴¹	b ¹³	-	-	17	7	.08	.03
F	<i>Physaria</i> spp.	b ⁹	a ⁻	ab ¹	-	4	-	1	-	.00
F	<i>Polygonum douglasii</i> (a)	-	7	-	-	-	4	-	.02	-
F	<i>Sphaeralcea coccinea</i>	a ⁻	b ²⁸	b ¹⁹	-	-	12	9	.08	.04
F	<i>Streptanthus cordatus</i>	-	1	-	-	-	1	-	.00	-
F	<i>Taraxacum officinale</i>	-	6	-	-	-	3	-	.01	-
Total for Annual Forbs		0	13	0	0	0	7	0	0.03	0
Total for Perennial Forbs		142	227	119	0	62	101	58	3.99	1.34
Total for Forbs		142	240	119	0	62	108	58	4.02	1.34

Values with different subscript letters are significantly different at % = 0.10 (annuals excluded)

BROWSE TRENDS --

Herd unit 10 , Study no: 3

T y p e	Species	Strip Frequency		Average Cover %	
		'95	'00	'95	'00
B	Artemisia frigida	1	1	-	.15
B	Artemisia nova	2	0	.01	-
B	Artemisia tridentata vaseyana	50	54	5.72	7.76
B	Ceratoides lanata	5	7	.09	.01
B	Chrysothamnus depressus	47	48	5.34	4.88
B	Chrysothamnus nauseosus hololeucus	1	1	-	.00
B	Gutierrezia sarothrae	31	29	.35	.36
B	Juniperus osteosperma	0	7	.93	1.14
B	Leptodactylon pungens	0	3	-	.15
B	Opuntia fragilis	1	0	.01	-
B	Pinus edulis	0	4	1.79	3.83
Total for Browse		138	154	14.25	18.32

CANOPY COVER --

Herd unit 10 , Study no: 3

Species	Percent Cover
	'00
Pinus edulis	4

BASIC COVER --

Herd unit 10 , Study no: 3

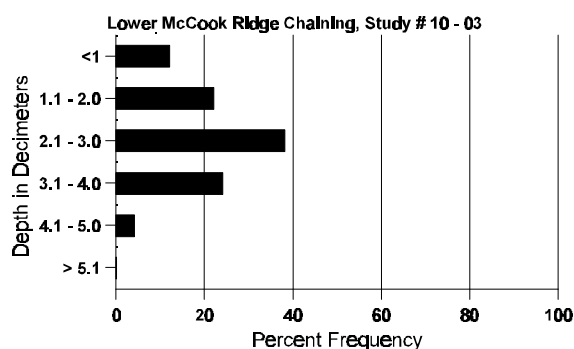
Cover Type	Nested Frequency		Average Cover %			
	'95	'00	'82	'88	'95	'00
Vegetation	349	330	5.25	12.50	32.93	34.54
Rock	150	43	1.00	2.50	2.11	1.52
Pavement	137	134	.75	5.25	2.95	1.11
Litter	392	336	73.25	69.00	36.46	34.29
Cryptogams	151	123	0	.50	6.62	5.81
Bare Ground	287	308	19.75	10.25	26.86	37.16

SOIL ANALYSIS DATA --

Herd Unit 10, Study # 3, Study Name: Lower McCook Ridge Chaining

Effective rooting depth (inches)	Temp °F (depth)	pH	%sand	%silt	%clay	%OM	PPM P	PPM K	dS/m
15.70	56.6 (16.14)	7.1	34.0	31.4	34.6	4.0	7.8	144.0	0.8

Stoniness Index



PELLET GROUP FREQUENCY --

Herd unit 10 , Study no: 3

Type	Quadrat Frequency		Pellet Transect	
			Pellet Groups per Acre	Days Use per Acre (ha)
	'95	'00	00	00
Rabbit	16	33	479	N/A
Elk	24	5	252	19 (48)
Deer	13	6	322	25 (62)
Cattle	2	1	-	-

BROWSE CHARACTERISTICS --

Herd unit 10 , Study no: 3

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Artemisia frigida																		
M	'82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	'88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	'95	3	-	-	-	-	-	-	-	-	3	-	-	-	60	9	11	3
	'00	-	-	-	4	-	-	-	-	-	4	-	-	-	80	7	5	4
% Plants Showing		<u>Moderate Use</u>				<u>Heavy Use</u>				<u>Poor Vigor</u>				<u>%Change</u>				
		'82				00%				00%								
		'88				00%				00%								
		'95				00%				00%				+25%				
		'00				00%				00%								
Total Plants/Acre (excluding Dead & Seedlings)														'82	0	Dec:	-	
														'88	0		-	
														'95	60		-	
														'00	80		-	

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Artemisia nova																		
S	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	1	-	-	-	-	-	-	-	-	-	1	-	-	20		1	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	1	-	-	-	-	-	-	-	-	-	1	-	-	20		1	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	95	1	5	-	-	-	-	-	-	-	-	6	-	-	120	19	6	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
		'82			00%			00%			00%							
		'88			00%			00%			00%							
		'95			71%			00%			00%							
		'00			00%			00%			00%							
Total Plants/Acre (excluding Dead & Seedlings)												'82	0	Dec:	-			
												'88	0		-			
												'95	140		-			
												'00	0		-			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Artemisia tridentata vaseyana																		
S	82	6	-	-	-	-	-	-	-	-	6	-	-	-	400		6	
	88	4	-	-	-	-	-	-	-	-	4	-	-	-	266		4	
	95	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
Y	82	10	-	-	-	-	-	-	-	-	10	-	-	-	666		10	
	88	1	2	-	-	-	-	1	-	-	4	-	-	-	266		4	
	95	77	1	-	-	-	-	-	-	-	78	-	-	-	1560		78	
	00	6	-	-	1	-	-	1	-	-	8	-	-	-	160		8	
M	82	-	14	5	-	-	-	-	-	-	17	2	-	-	1266	22 25	19	
	88	1	8	3	1	-	-	-	-	-	13	-	-	-	866	24 29	13	
	95	34	33	-	1	-	-	-	-	-	68	-	-	-	1360	25 32	68	
	00	34	37	4	7	8	-	-	-	-	90	-	-	-	1800	23 26	90	
D	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	3	3	-	-	-	-	-	-	-	4	-	2	-	400		6	
	95	1	4	-	-	-	-	-	-	-	4	-	-	1	100		5	
	00	16	11	7	10	4	2	1	-	-	22	-	1	28	1020		51	
X	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	100		5	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'82		48%			17%			00%			-21%							
'88		57%			13%			09%			+49%							
'95		25%			00%			.66%			- 1%							
'00		40%			09%			19%										
Total Plants/Acre (excluding Dead & Seedlings)												'82	1932	Dec:	0%			
												'88	1532		26%			
												'95	3020		3%			
												'00	2980		34%			
Atriplex canescens																		
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	26 24	0	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'82		00%			00%			00%										
'88		00%			00%			00%										
'95		00%			00%			00%										
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'82	0	Dec:	-			
												'88	0		-			
												'95	0		-			
												'00	0		-			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Ceratoides lanata																		
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	1	-	-	-	-	-	1	-	-	2	-	-	-	133		2	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	88	1	-	-	-	-	-	-	-	-	1	-	-	-	66	15	1	
	95	6	-	-	-	-	-	-	-	-	6	-	-	-	120	6	6	
	00	3	3	-	-	-	-	1	-	-	7	-	-	-	140	9	7	
D	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	00	-	-	-	1	-	-	-	-	-	-	-	-	1	20		1	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
		'82			00%			00%			00%							
		'88			00%			00%			00%							
		'95			00%			00%			00%							
		'00			38%			00%			13%							
Total Plants/Acre (excluding Dead & Seedlings)												'82	0	Dec:	0%			
												'88	199		0%			
												'95	120		0%			
												'00	160		13%			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Chrysothamnus depressus																		
S	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	19	-	-	-	-	-	-	-	-	-	19	-	-	1266		19	
	95	3	-	-	-	-	-	-	-	-	-	3	-	-	60		3	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	179	3	-	1	-	-	-	-	-	-	183	-	-	12200		183	
	95	43	-	-	-	-	-	-	-	-	-	43	-	-	860		43	
	00	81	-	-	-	-	-	-	-	-	-	81	-	-	1620		81	
M	82	-	-	94	-	-	-	-	-	-	-	94	-	-	6266	3	9	94
	88	53	159	2	4	-	-	-	-	-	-	218	-	-	14533	4	9	218
	95	640	-	-	-	-	-	-	-	-	-	640	-	-	12800	5	11	640
	00	180	272	-	4	108	-	-	-	2	566	-	-	-	11320	3	10	566
D	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	5	3	-	-	-	-	-	-	-	-	7	-	1	533		8	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	00	85	31	-	2	4	-	6	-	-	108	-	-	20	2560		128	
X	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	160		8	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'82		00%			100%			00%			+77%							
'88		40%			.48%			.24%			-50%							
'95		00%			00%			00%			+12%							
'00		54%			.25%			03%										
Total Plants/Acre (excluding Dead & Seedlings)												'82	6266	Dec:	0%			
												'88	27266		2%			
												'95	13660		0%			
												'00	15500		17%			
Chrysothamnus nauseosus																		
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	35	34	0
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'82		00%			00%			00%										
'88		00%			00%			00%										
'95		00%			00%			00%										
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'82	0	Dec:	-			
												'88	0		-			
												'95	0		-			
												'00	0		-			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Chrysothamnus nauseosus hololeucus																		
S	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	3	-	-	-	-	-	-	-	-	-	-	-	-	60		3	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	2	-	-	-	-	-	-	-	-	-	-	-	-	40		2	
	00	1	-	-	-	-	-	-	-	-	-	-	-	-	20		1	
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	95	1	-	-	-	-	-	-	-	-	-	-	-	-	20	36	43	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	39	42	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'82		00%			00%			00%										
'88		00%			00%			00%										
'95		00%			00%			00%			-67%							
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'82	0	Dec:	-			
												'88	0		-			
												'95	60		-			
												'00	20		-			
Gutierrezia sarothrae																		
S	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	2	-	-	-	-	-	-	-	-	-	-	-	-	40		2	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	10	-	-	6	-	-	-	-	-	-	-	-	-	1066		16	
	95	17	-	-	-	-	-	-	-	-	-	-	-	-	340		17	
	00	18	-	-	-	-	-	-	-	-	-	-	-	-	360		18	
M	82	1	-	-	-	-	-	-	-	-	-	-	-	-	66	4	1	
	88	49	-	-	3	-	-	-	-	-	-	-	-	-	3466	8	5	
	95	57	-	-	-	-	-	-	-	-	-	-	-	-	1140	7	7	
	00	45	-	-	-	-	-	-	-	-	-	-	-	-	900	4	5	
D	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	1	-	-	-	-	-	-	-	-	-	-	-	-	66		1	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	00	6	-	-	-	-	-	-	-	-	-	-	-	1	120		6	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'82		00%			00%			00%			+99%							
'88		00%			00%			00%			-68%							
'95		00%			00%			00%			- 7%							
'00		00%			00%			01%										
Total Plants/Acre (excluding Dead & Seedlings)												'82	66	Dec:	0%			
												'88	4598		1%			
												'95	1480		0%			
												'00	1380		9%			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Juniperus osteosperma																		
S	82	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	88	1	-	-	-	-	-	-	-	-	1	-	-	66			1	
	95	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	00	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
Y	82	1	-	-	-	-	-	-	-	-	1	-	-	66			1	
	88	1	-	-	-	-	-	-	-	-	1	-	-	66			1	
	95	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	00	5	-	-	-	-	-	-	-	-	5	-	-	100			5	
M	82	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	
	88	-	-	-	-	1	-	-	-	-	1	-	-	66	118	79	1	
	95	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	
	00	2	-	-	-	-	-	-	-	-	2	-	-	40	-	-	2	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'82		00%			00%			00%			+50%							
'88		50%			00%			00%										
'95		00%			00%			00%										
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'82	66	Dec:	-			
												'88	132		-			
												'95	0		-			
												'00	140		-			
Leptodactylon pungens																		
M	82	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	
	88	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	
	95	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	
	00	4	-	-	-	-	-	-	-	-	4	-	-	80	8	11	4	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'82		00%			00%			00%										
'88		00%			00%			00%										
'95		00%			00%			00%										
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'82	0	Dec:	-			
												'88	0		-			
												'95	0		-			
												'00	80		-			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Opuntia fragilis																		
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	1	-	-	-	-	-	-	-	-	-	1	-	-	66		1	
	95	1	-	-	-	-	-	-	-	-	-	1	-	-	20		1	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
M	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0	4	14	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'82		00%			00%			00%										
'88		00%			00%			00%			-70%							
'95		00%			00%			00%										
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'82	0	Dec:	-			
												'88	66		-			
												'95	20		-			
												'00	0		-			
Pediocactus simpsonii																		
M	82	1	-	-	-	-	-	-	-	-	1	-	-	-	66	1	4	
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	1	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'82		00%			00%			00%										
'88		00%			00%			00%										
'95		00%			00%			00%										
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'82	66	Dec:	-			
												'88	0		-			
												'95	0		-			
												'00	0		-			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Pinus edulis																		
S	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	00	1	-	-	1	-	-	-	-	-	2	-	-	-	40		2	
Y	82	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	88	4	-	-	-	-	-	-	-	-	4	-	-	-	266		4	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	00	2	-	-	-	-	-	-	-	-	2	-	-	-	40		2	
M	82	6	-	-	-	-	-	-	-	-	6	-	-	-	400	33	18	
	88	1	-	-	-	-	-	1	-	-	2	-	-	-	133	94	73	
	95	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	
	00	-	-	-	1	-	-	1	-	-	2	-	-	-	40	-	-	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
		'82			00%			00%			- 0%							
		'88			00%			00%										
		'95			00%			00%										
		'00			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'82	400	Dec:	-			
												'88	399		-			
												'95	0		-			
												'00	80		-			